



UNITED STATES PATENT AND TRADEMARK OFFICE

pw
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,173	06/22/2001	Hajime Kando	36856.510	7813
7590	05/07/2004		EXAMINER	
Keating & Bennett LLP 10400 Eaton Place, Suite 312 Fairfax, VA 22030				DOUGHERTY, THOMAS M
		ART UNIT		PAPER NUMBER
		2834		

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/887,173	KANDO, HAJIME	
	Examiner	Art Unit	<i>pw</i>
	Thomas M. Dougherty	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 April 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-6 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-6 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>404</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichikawa (US 6,462,633). Ichikawa shows (figs. 3, 5, 11A, B) a surface acoustic wave device, comprising: a piezoelectric substrate (understood); and at least two basic sections disposed on said piezoelectric substrate, each of the at least two basic sections including an asymmetrical double electrode defining a half wavelength section (note in figs. 11A and B which are shown as a way of explanation of internal reflection, 7112 and 712 as well as the distance between them define a length of $3\lambda/8$ and the distance between G and e1 of 711 is $\lambda/16 + \lambda/16 + 3\lambda/8 = \lambda/2$) and having first and

second strips with different widths from each other (e.g. fig. 5); wherein an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately 45 ± 10^0 or approximately 135 ± 10^0 , when a center of a respective one of said at least two basic sections is a reference position for the range of angles. Note his discussion at col. 8, especially lines 45-52 where he notes that "it may be possible to adjust vectors E11, E22, E33, E44, so that these are situated in "a first quadrant between 90^0 and 0^0 (which includes the claimed range of 45 ± 100)". The reflection amounts of surface acoustic waves at edge positions of said strips are substantially equal to one another (note in fig. 11C that Ichikawa shows equal reflection amounts). Said asymmetrical double electrode is an interdigital transducer. Said asymmetrical double electrode is a reflector (E1-E4 in fig. 11B).

Ichikawa's double electrode is a reflector. Note reflections in fig. 11B.

Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunsinger et al. (US 4,162,465). Hunsinger et al. show (figs. 1 and 2) a surface acoustic wave device, comprising: a piezoelectric substrate (20); and at least two basic sections (130, 160) disposed on said piezoelectric substrate, each of the at least two basic sections (130, 160) including an asymmetrical double electrode defining a half wavelength section and having first (241) and second (242) strips with different widths from each other; wherein an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately 45 ± 10^0 or

approximately 135 ± 10^0 , when a center of a respective one of said at least two basic sections is a reference position for the range of angles. Note that as the claimed structure is shown by the prior art, the claimed functionality must be met. The reflection amounts of surface acoustic waves at edge positions of said strips are substantially equal to one another (see fig. 11C). Said asymmetrical double electrode is an interdigital transducer. Said asymmetrical double electrode is a reflector (fig. 7).

Hunsingers's double electrode is a reflector. Note reflections in fig. 7.

Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitobe (EP 1 143 612 A1). Mitobe shows (figs. 1A-1D and 2) a surface acoustic wave device, comprising: a piezoelectric substrate (11); and at least two basic sections (13, 14) disposed on said piezoelectric substrate (11), each of the at least two basic sections (13, 14) including an asymmetrical double electrode defining a half wavelength section and having first (5a1, 6a1) and second (5b1, 6b1) strips with different widths from each other; wherein an absolute value of a vector angle of a reflection center obtained from a resultant vector generated by synthesizing reflection vectors at edges of the first and second strips, is within a range of angles of approximately 45 ± 10^0 or approximately 135 ± 10^0 , when a center of a respective one of said at least two basic sections is a reference position for the range of angles. Note that as the claimed structure is shown by the prior art, the claimed functionality must be met. The reflection amounts of surface acoustic waves at edge positions of said strips are substantially equal to one another (note equal vector lengths in figs 1B, 1C). Said asymmetrical double electrode

is an interdigital transducer. Said asymmetrical double electrode is a reflector (figs. 1A, 1C).

Mitobe's double electrode is a reflector. Note reflections in figs. 1A, 1C.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of Ichikawa (US 6,462,633), Hunsinger et al. (US 4,162,465) or Mitobe (EP 1 143 612 A1) in view of Graebner et al. (US 6,049,155). Given the invention of any of Ichikawa, Hunsinger et al., or Mitobe, as noted above they do not show a piezoelectric substrate made of quartz crystal material. Graebner notes (col. 3, ll. 5-6) the use of quartz in a surface acoustic wave device for its piezoelectric substrate. He further notes the interchangeability of quartz with lithium borate, which is the material used by Ichikawa. Graebner doesn't disclose designing his device for the purpose of choosing its vector angle of a reflection center. It would have been obvious to one having ordinary skill in the art to employ quartz of Graebner in the invention of Ichikawa at the time of his invention since these are interchangeable materials in this regard. Additionally, quartz is a readily available material with well-known characteristics and thus its operability can be easily predicted for such use. Finally it would have been obvious to one having ordinary skill in the art at the time of any of the Ichikawa, Hunsinger et al., or Mitobe

Art Unit: 2834

invention to use quartz in the device for the piezoelectric substrate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Direct inquiry concerning this action to Examiner Dougherty at (571) 272-2022.

tmd
tmd

April 26, 2004

Thomas M. Dougherty

THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP 2100